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NIXON & VANDERHYE, PC
1100 N GLEBE ROAD
8TH FLOOR
ARLINGTON, VA 22201-4714

EXAMINER
OCAMPO, MARIANNE S

ART UNIT	PAPER NUMBER
1723	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/904,100	Applicant(s) ROBILLARD, NORMAN F.
	Examiner Marianne S. Ocampo	Art Unit 1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claims 3, 8 and 13 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend them to place the claims in proper dependent form, or rewrite the claims in independent form. Both the base claims 1 and 7 have already included the feature of the expanded polymeric film mesh being formed of a dense plurality of generally diamond-shaped apertures, as in claims 3 and 8, and therefore, claims 3 and 8 are of improper dependent form for failing to further limit the subject matter of the previous claims 1 and 7, respectively. In addition, claim 7 has already incorporated the feature of having a pair of support layers which sandwich the filter membrane layer therebetween, as recited in claim 13 (which depends on claim 7), and therefore, claim 13 is of improper dependent form for failing to further limit the subject matter of the previous claim 7.

2. Claims 13 and 14 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 2 and 11, respectively. Claim 15 is also objected to under 37 CFR 1.75 as being a substantial duplicate of claims 4 and 9. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording,

it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 – 5, 7 – 11, 13, 15 - 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shane (WO 00/45932) in view of Wojciechowski (US 5,636,749).

5. With regards to claims 1 and 3, Shane discloses a filter cartridge having (*the transitional phrase "having" has been considered to be an open ended or has the same meaning as the conventional transitional phrase "comprising"*) a multi-layer pleated filter media comprised of a filter membrane layer (23), and at least one support layer (22 or 24) for the filter membrane layer, wherein the at least one support layer is formed of a polymeric (extruded) film mesh, and pleats of the multi-layer pleated filter media have elongate pleat axes disposed

substantially parallel to a central longitudinal axis of the filter cartridge, as in pages 1 – 7 and figs. 1 – 2.

Shane fails to disclose the polymeric film mesh being an expanded film mesh formed of a dense plurality of generally diamond-shaped apertures having respective long and short dimensions (claim 3); and the expanded mesh is disposed such that said long dimensions of said diamond-shaped apertures thereof are oriented substantially transverse to the elongate pleat axes of the pleated filter media (claim 1).

6. Wojciechowski teaches a multi-layer pleated filter media comprised of at least one filtration layer (subassembly 25 or screens, 27 - 30), wherein pleats of the multi-layer pleated filter media have elongate pleat axes disposed substantially parallel, and at least one support layer comprised of an expanded polymeric film mesh (24) formed of a dense plurality of generally diamond-shaped apertures having respective long and short dimensions and the expanded mesh/screen or grid (24) is disposed such that said long dimensions of said diamond-shaped apertures thereof are oriented substantially transverse to the elongate pleat axes of the pleated filter media, as in figs. 1 – 3 and cols. 2 – 5.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filter cartridge of Shane by adding the embodiment taught by Wojciechowski, in order to provide an improved filter media support which has greater porosity, thereby allowing unobstructed and improved fluid flow therethrough and into the filter media/layer, at the same time, provide a support which is stable and will not corrode easily compared to its metallic counterparts.

7. Regarding claims 2 and 13, Shane as modified by Wojciechowski, has taught the limitations of claim 1 above.. Shane further discloses the filter media includes a pair of support layers (22 and 24) which sandwich the filter membrane layer (23) therebetween, as in fig. 2 and pages 6 - 7.

8. Concerning claims 4 – 5, Shane as modified by Wojciechowski, has taught the limitations of claim 3 above. Wojciechowski further teaches the expanded polymeric film mesh (24) exhibiting an open area of at least about 40% (claim 4), and exhibiting an open area of at least between about 50% to about 60% (claim 5), as in fig. 1. The same motivation applied above in claims 1 & 3 is being applied here.

9. With regards to claims 7 – 8 and 13, Shane discloses a filter cartridge comprising:

- concentrically disposed slotted core (33) and cage members (14), and
- a multilayer pleated filter media positioned in an annular space established between the core and cage members (33 and 14, respectively), the filter media including:
    - an inner filter membrane layer (23) sandwiched between a pair of support layers (22 & 24) for the filter membrane layer, wherein the at least one support layer is formed of a polymeric (extruded) film mesh, and

• pleats of the multi-layer pleated filter media have elongate pleat axes disposed substantially parallel to a central longitudinal axis of the filter cartridge, as in pages 1 – 7 and figs. 1 – 2.

Shane fails to disclose the polymeric film mesh being an expanded film mesh formed of a dense plurality of generally diamond-shaped apertures (claim 8) having respective long and short dimensions and the expanded mesh is disposed such that said long dimensions of said diamond-shaped apertures thereof are oriented substantially transverse to the elongate pleat axes of the pleated filter media (claims 7 and 13).

10. Wojciechowski teaches a multi-layer pleated filter media comprised of at least one filtration layer (subassembly 25 or screens, 27 - 30), wherein pleats of the multi-layer pleated filter media have elongate pleat axes disposed substantially parallel, and having a support layer comprised of an expanded polymeric film mesh (24) formed of a dense plurality of generally diamond-shaped apertures having respective long and short dimensions and the expanded mesh/screen or grid (24) is disposed such that said long dimensions of said diamond-shaped apertures thereof are oriented substantially transverse to the elongate pleat axes of the pleated filter media, as in figs. 1 – 3 and cols. 2 – 5.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filter cartridge of Shane by replacing each of the support layers with the embodiment taught by Wojciechowski, in order to provide an improved filter media support which has greater porosity, thereby allowing unobstructed and improved fluid flow therethrough and into the filter

media/layer, at the same time, provide a support which is stable and will not corrode easily compared to its metallic counterparts.

11. Concerning claims 9 – 10 and 15, Shane as modified by Wojciechowski, has taught the limitations of claim 8 above. Wojciechowski further teaches the expanded polymeric film mesh (24) exhibiting an open area of at least about 40% (claims 9 and 15), and exhibiting an open area of at least between about 50% to about 60% (claim 10), as in fig. 1. The same motivation applied above in claims 7 - 8 is being applied here.

12. Regarding claim 16, Shane discloses a generally cylindrical filter cartridge comprising:

- an inner core member (33),
- an outer cage member (14) concentrically positioned around said inner core member so as to establish an annular space therebetween, and
- a multilayer pleated filter media positioned in an annular space established between the core and cage members (33 and 14, respectively), the filter media including:
    - a filter membrane layer (23) and,
    - at least one polymeric film mesh (22 or 24) as a support layer for the filter membrane layer; and

• pleats of the multi-layer pleated filter media have elongate pleat axes disposed substantially parallel to a central longitudinal axis of the filter cartridge, as in pages 1 – 7 and figs. 1 – 2.

Shane fails to disclose the polymeric film mesh being an expanded film mesh formed of a dense plurality of generally diamond-shaped apertures having respective long and short dimensions and the expanded mesh is disposed such that said long dimensions of said diamond-shaped apertures thereof are oriented substantially transverse to the elongate pleat axes of the pleated filter media (claim 16).

13. Wojciechowski teaches a multi-layer pleated filter media comprised of at least one filtration layer (subassembly 25 or screens, 27 - 30), wherein pleats of the multi-layer pleated filter media have elongate pleat axes disposed substantially parallel, and at least one support layer comprised of an expanded polymeric film mesh (24) formed of a dense plurality of generally diamond-shaped apertures having respective long and short dimensions and the expanded mesh/screen or grid (24) is disposed such that said long dimensions of said diamond-shaped apertures thereof are oriented substantially transverse to the elongate pleat axes of the pleated filter media, as in figs. 1 – 3 and cols. 2 – 5.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filter cartridge of Shane by adding the embodiment taught by Wojciechowski, in order to provide an improved filter media support which has greater porosity, thereby allowing unobstructed and improved fluid flow therethrough and into the filter media/layer, at the same

time, provide a support which is stable and will not corrode easily compared to its metallic counterparts.

14. Regarding claim 17, Shane as modified by Wojciechowski, has taught the limitations of claim 16 above. Shane further discloses the filter media includes a pair of support layers (22 and 24) which sandwich the filter membrane layer (23) therebetween, as in fig. 2 and pages 6 - 7.

15. With respect to claim 20, Shane as modified by Wojciechowski, has taught the limitations of claim 16 above. Wojciechowski further teaches the expanded polymeric film mesh (24) exhibiting an open area of at least about 40%, as in fig. 1. The same motivation applied above in claim 16 is being applied here.

16. Claims 6, 11, 14 and 18 - 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Shane and Wojciechowski, as applied to claims 4, 7, claims 1 or 7 and claim 16, respectively above, and further in view of Ashelin et al. (US 5,154,827).

17. With respect to claims 6, 11, 14 and 18, Shane as modified by Wojciechowski, has been taught the limitations of claims 4, 7, claims 1 or 7, and claim 16, respectively above. Shane, as modified by Wojciechowski, fails to teach the filter membrane layer and the expanded polymeric film each consisting of polytetrafluoroethylene.

Ashelin et al. teach a multi-layer pleated filter cartridge (11) similar to that of Shane as modified by Wojciechowski, the cartridge of Ashelin et al. further teach having a filter membrane layer (21) and each of its support layers (17 & 19) consisting of a fluorocarbon polymer, such as PTFE or polytetrafluoroethylene, as in cols. 1 – 9.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the material of construction of the filter membrane layer and the support layers of Shane, as modified by Wojciechowski, from any polymer to specifically a fluorocarbon such as PTFE, as taught by Ashelin et al., in order to provide an alternative and improved material for the filter membrane and support layers which is stable at high temperatures, chemically and physically resistant and inert (see col. 1, lines 50 - 55) at the same time, provides a membrane layer which exhibits high porosity, high strength & flux and superior dirt holding capacity (col. 8, lines 14 – 16).

18. Concerning claim 19, Shane, as modified by Wojciechowski and Ashelin et al., has been taught the limitations of claim 18 above. Shane, as modified by Wojciechowski and Ashelin et al. further teach the filter cartridge (11) including an inner core (23) member and an outer cage (25) member consisting of polytetrafluoroethylene, as in col. 4, lines 30 – 34.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the material of construction of the inner core and cage of Shane, as modified by Wojciechowski, from any polymer or plastic material to specifically a fluorocarbon polymer/plastic such as PTFE, as taught by Ashelin et al., in order to provide an alternative and

improved material for the inner core and cage members which is stable at high temperatures, chemically and physically resistant and inert (see col. 1, lines 50 - 55).

Response to Arguments

19. Applicant's arguments, see Amendment A (Paper no. 8), filed 3-11-03, with respect to the rejections of claims 1 – 11 and 13 - 20 under 35 U.S.C. 103 (a) based on the previously applied prior art, Miller in combination with Dunn and Ashelin et al., have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration and an updated search, a new grounds of rejection is made in view of Shane in combination with Wojciechowski and Ashelin et al. as set forth above.

20. **This action is non-final.**

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,103,119 (Clements et al.) and WO 96/02313 (Stark).

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo whose telephone number is (703) 305-

1039. The examiner can normally be reached on Mondays to Fridays from 8:30 A.M. to 4:30 P.M..

23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on (703) 308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

24. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

M.S.O.

W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700